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Report of the 1964 Trade Mission to GERMANY

A U.S. DEPARTMENT OF COMMERCE PUBLICATION

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Construction in Germany: A market appraisal

By G. EDWARD BORST
Director, U.S. Building Supplies and Equipment Mission to Germany

Now is the time for U.S. manufacturers of building materials and supplies to take a look at the German market.

The U.S. Building Supplies and Equipment Mission—composed of a director, a trade development officer, and four U.S. businessmen experienced in construction—spent almost a month (February 29-March 27) visiting sites in Germany's principal cities. The group held conferences with German and American Government officials, German businessmen, engineers, architects, and contractors, in an effort to learn why building costs are so much higher there than they are in the United States despite considerably lower money wage rates, and why it generally takes twice as long to complete a building project in Germany as it does in the United States.

Mission members visited factories producing for the building industry and staffed a U.S. Business Information Center (BIC) for 10 days at the Building Materials Trade Show in Munich. They discussed at length, among themselves, the German housing and construction industry. The following views were virtually unanimous among the members:

The German housing and construction industry has available for its use, for the most part, a supply of up-to-date building materials and a supply of modern tools and equipment. Also, the people in this industry are generally familiar with the latest methods and techniques.

There is a philosophy in Germany that everything constructed must be built to last for many, many years. Along with this feeling goes the belief that for anything to be good it must be massive—thick and heavy. Building codes of the various cities and states go hand in glove with

PREFAB CONSTRUCTION: Mission members watch walls being put in place for Hamburg apartment.

this philosophy. Investors and lending institutions also foster this policy.

No general contractor

In the construction industry in Germany, with possibly few exceptions, there is no general contractor. The architect prepares plans and specifications and in addition assumes the role of the general contractor; this role is secondary. Accordingly, there are practically no projects for which the price is guaranteed at the start, and a project may take twice as long as it should. The architect receives a percentage fee, based on total cost.

In the United States general standardization within the industry permits manufacturers to make their products in accepted sizes. In Germany there is almost a complete lack of standardization in major components such as windows, doors, and kitchen units. No one knows ahead of time what sizes will be specified. This lack not only increases costs but delays delivery of materials.

Finally, it is felt that this picture would be changed to some degree if business conditions in the industry should become really competitive. Presently there is more work than there are contractors to handle it, which leads to an indifference on the part of builders toward final costs.

Some farsighted builders, seeing the handwriting on the wall, are directing their thinking toward ways and means to reduce costs. Federal Government agencies responsible for dealing with the insufficiency of suitable housing and the inflationary situation in the building industry are keenly interested in ways and means of reducing costs and saving labor.

It is quite evident that this effort by the Government and the movement underway among some builders offer a fertile ground for introduction at this time of cost and lavor saving components developed in the highly competitive building industry in the United States.

Now is the time, therefore, for U.S. manufacturers of building materials and supplies to take a look at the German market. A year or two from now may be too late.

DISCOUNT HOUSES

The discount house is a relative newcomer to the German retailing scene. From a total of three such establishments in 1956, the number multiplied rapidly and reached about 465 in March 1962, according to an unofficial survey.

More than 85% of these firms deal only in groceries, confections, alcoholic beverages and textiles. Radio, television and household appllances began appearing in discount stores in April 1962.

Light U.S. prefabs can replace cumbersome German models; should stress special features

Germans overcoming prejudice against wooden construction; building codes vary greatly between individual cities

By GEORGE E. PRICE
President, National Homes Corp.
Lafayette, Indiana

There is tremendous interest in prefabricated housing as a possible solution to increasing housing production and reducing housing costs in Germany.

With demand far in excess of new housing production, along with a sizeable shortage of labor, Germans interested in the construction industry hope to produce housing faster, with less labor and at lower cost.

However, in Germany "prefabricated housing" is really a term for any method of construction different from conventional methods, which produces exactly the same housing with the same materials always used, but with less labor, faster and at less cost.

Due to the shortage of land zoned for residential use, along with the tremendous volume of housing required, about 70% of the dwellings being constructed in the larger cities are concrete or block apartment buildings at least 4 stories high. The time required to build these apartment buildings, and complete them ready for occupancy, has been between 12 and 24 months.

The main approach to prefabrication has been to use factory-built, reinforced concrete walls, floors, and ceiling components. These components are built in room-size widths with insulation in the panels, and windows and doors, wiring and heating pipes already installed.

Their size and thickness (approximately 10 inches) make them very heavy, and 5 to 6 trailer loads are required to deliver the average number of components required for one apartment. This limits the distance manufacturers can deliver their components to within 25 to 30 miles from the factory.

The quality of the factory-produced components is much better than conventional apartment construction, and this method reduces construction time to 4½ to 5 months. However, German general contractors feel that the total direct cost of the concrete prefabricated apartment buildings are not competitive with the direct cost of the apartment buildings constructed in the conventional manner.

In Berlin, in one instance, prefabricated concrete components for apartment buildings were being imported from Denmark by railway, and the city of Berlin was subsidizing the apartments by the cost of the transportation which amounted to $1,000 per dwelling unit.

A large percentage of the apartments being built in Germany are for low-cost rentals and are government subsidized or stimulated by tax relief to non-profit ownership companies.

On the rise

Prefabricated wood houses account for an increasing number of the single family residences, which constitute 30% of the new housing being built in the larger cities.

Lumber is scarce in Germany, and most of the lumber used in home construction has to be imported. The German public also seems to feel that houses built of wood are not as sturdy, strong

Mission to Germany

A U.S. Building Supplies and Equipment Mission to Germany visited 7 cities and 17 plants February 29-March 27.

A total of 81 German firms expressed definite interest in the 136 Business Proposals carried by the Mission from U.S. firms. These referrals resulted in some 280 contacts between U.S. and German companies.

Specific business opportunities were developed, as follows: For export, 125; import, 13; licensing, 31; joint venture, 2; and services, 3.

and durable as the concrete variety, and that wooden houses are a fire hazard.

Up to recently, this caused a prejudice against wood houses, regardless of cost. However, there is a change taking place.

A number of the medium to more expensive houses being built in cities and in outlying areas are using wood in their construction. Many wood home manufacturers, mostly small scale operations, have been started throughout Germany in the last few years. Wood prefabricated homes have also been imported from France, Sweden, Denmark, Finland and Holland.

New factories to produce aluminum and steel prefabricated single family homes have recently been introduced.

The concrete prefabricated home manufacturers are also beginning to produce concrete single family homes. However, their total weight for a home of 1,000 square feet is between 80 and 100 tons, which will strictly limit their area of distribution.

The Studiengemeinschaft fuer Fertigbau, an association of approximately 100 wooden home manufacturers in Germany reports that 7,000 prefabricated wooden homes were manufactured and built in Germany during 1963, and predicts that between 10,000 and 11,000 prefabricated wooden homes will be manufactured and built in 1964.

No prefab tailoff

Despite an anticipated leveling off of housing construction within the next 2 or 3 years, future housing construction will feature an ever-increasing trend toward prefabricated units. The share of prefabricated units in the total number of dwelling units completed increased from 2.2% in 1962 to 4.2% in 1963.

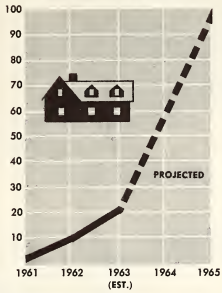
The Federal Housing Ministry fully backs efforts by the construction industry to increase production through prefabrication methods, and the Minister for Housing estimates an annual rate of prefabricated housing construction of 100,000 by 1965, as illustrated by the accompanying chart.

One of the biggest differences between the operations of home manufacturers in Germany and the U.S. is that the German manufacturer sells directly to the ultimate home owner, and handles all the field construction of every home that he manufactures.

To build a home by the conventional method in Germany, an architect draws the plans, and handles the subcontracting of all the direct phases of construction required to build the home. The home builder, as we know him in the U.S., does not exist in Germany.

Prefab construction spurts in Germany

(in thousands of dwelling units)



Housing costs high

Housing costs are high in Germany compared to the U.S. With the demand for housing in Germany larger than the supply, there has been no incentive to research and develop new materials and methods to provide better living in new housing at lower costs. In contrast, U.S. home builders are constantly striving to offer more attractive housing in order to compete for a larger share of the consumer dollar.

As the German standard of living continues to increase, the upgrading of housing—a trend to more single family homes in outlying areas will take place.

As this takes place, wooden prefabricated homes should account for a larger percentage of new home construction. High income families may buy wood homes because they feel they get better living accommodations for their money—and the attraction of better living at lower cost will outweigh traditional prejudices. Actually this has already started to some degree, but it will increase more rapidly in the future.

Will resemble U.S.

As this transition in housing develops further, and the residential construction industry in Germany catches up with the huge demand, the entire industry will find itself in the situation which exists in the U.S. today: searching for new and better materials and methods to provide better living for less costs and capture a larger share of the German people's income.

There is a good opportunity in Germany for U.S. home manufacturers with all of their technical and merchandising know-how. However, it is long range, and will continue to increase in volume over the years ahead, as some of the German wooden home manufacturers have already begun to experience.

Problems

There are many different building codes in Germany, which vary greatly among the different cities, and there are many housing requirements and desires of the German people which differ from the home buying public in the U.S.

U.S. firms should survey the market in Germany itself to determine these different requirements. They should obtain the services of German architectural firms to draw up housing plans, worked from the manufacturers' present plans, and using the metric system.

At the same time the German architect should alter the plans to meet the German codes in the cities where the U.S. firm chooses to start distribution. For instance, ceiling heights in the U.S. are usually 8 feet, while the minimum we found in Germany was approximately 8 feet and 6 inches. The Mission also found gypsum wallboard on the interiors of wood frame houses, applied over one inch wooden sheathing. This was a code requirement in some areas, and in other cases was used to overcome any objection to the sturdiness of wooden houses.

The codes require heavy roof framing, because the common practice is to use clay or concrete tile for the roofs. This requirement was the same where asphalt roofing was used, because of the possibility that the home owner may install a tile roof later. Roof trusses are not commonly used in Germany.

The most common materials used on the exteriors of wood houses were cement, asbestos, shingles and plaster.

Transportation of wooden prefabricated homes in Germany is expensive and the rate is the same by railway as by truck. The legal truck size is smaller than in the U.S. Consideration will have to be given to truck sizes in designing the sizes of house components to be shipped.

Although it is necessary to obtain a German architect to alter designs and plans to make them acceptable in Germany, U.S. manufacturers should include in their house plans all of the feature items that give their homes sales appeal in the U.S. Include all materials used in the U.S. which make the homes more competitive in Germany.

For instance, there is little or no standardization of window sizes in Germany as we know it in the U.S. Architects specify the window sizes, and all windows

PREFABRICATED CEMENT HOUSING: Mission members visit Bayerische Fertigbau plant at Garching near Munich. Reinforced concrete walls are widely used.

are custom manufactured. As a result windows are expensive. The U.S. manufacturer should use his standard window sizes to maintain the competitive advantage.

The same is true regarding truss roof, plywood, fiberboard sheathing, gypsum wallboard, prefinished aluminum wherever used on exteriors, asphalt roofing, cabinets, medicine cabinets, closets and closet doors, prefinished ready hung exterior and interior doors, prefabricated plumbing, prefabricated chimneys and every cost saving item that the U.S. manufacturer has in his present production.

Many German people interested in procuring prefabricated homes from the U.S. prefer medium to larger houses of contemporary architectural design, and strong consideration should be given to this by any U.S. firm entering the German housing market.

A Hamburg wooden home manufacturer who has made several trips to the U.S. and studied U.S. plans, materials and merchandising, has done a very good job of producing a line of homes which he called "Amerikanische Komfort-Bungalows." He used such typical U.S. features as asphalt roofing, aluminum horizontal sliding windows, gypsum interiors, closets, medicine cabinets, central heating, and cement asbestos sidings with exterior appearance of U.S. housing.

His merchandising consisted of 3 furnished model homes: a 2-bedroom, 1-bath home with attached garage with a living area of approximately 900 sq. ft.; a 3-bedroom, 1½ bath home with attached garage with living area of approximately 1,050 sq. ft.; and a 4-bedroom, 2-bath home with attached garage with a living area of approximately 1,200 sq. ft. The prices of these 3 homes, without land, ranged from $16,250 to $25,000, which was the lowest-priced single family home in the area. In 1963 this manufacturer sold 300 of these homes.

Thus wooden homes of U.S. manufacture will be competitive and will sell in the German housing market.

The installation of utilities—plumbing, heating, and electrical—is very slow and expensive. Any U.S. home manufacturer would have a big advantage with a mechanical core—a unit prefabrication including the floor and walls containing the bathrooms, heating room and kitchen cabinet installation with all plumbing, heating and electrical equipment completely installed so the cubicle could be set on the foundation ready to connect.

One concrete home manufacturer of single family homes operating in Berlin and Frankfurt was purchasing such a unit from Sweden with concrete floors and walls and having it delivered to Germany. The unit contains 1½ baths.

The unit is being delivered to Berlin and Frankfurt for $3,000, which includes duty of $450 and freight of $250. A washing machine and drying room could be included for $750.

Mortgage money is available for private financing of home purchasing in Germany.

Organizing for the market

The opportunity for U.S. home manufacturers in Germany will have to be considered as a long range program in order to be successful and profitable.

Once houses are adapted to meet German requirements, it would be very worthwhile for a U.S. manufacturer to secure a German firm as a partner in the distribution of homes. The partner should have a good business reputation and be strong financially.

Many German firms showed strong interest in this type of arrangement, and are anxious to make connections with reputable U.S. firms which have "know-how" and experience in producing and merchandising prefabricated homes.

U.S. techniques should be instituted in the merchandising of homes in Germany. The "home builder," who does not exist in Germany today, should be de-

veloped to perform the same functions he performs in the U.S. The profit opportunity for the newly-developed home-builder in Germany would increase the market potential immeasurably and assure the U.S. firm of expanding with the German housing market.

The U.S. firm should locate an experienced sales representative to manage its German operation and establish and develop this new merchandising concept for the German housing market.

An educational program should be instituted to acquaint lending institutions, Government building officials and Federal Housing authorities with this totally new concept of housing; to show them the quality of construction, with all its benefits and advantages; and the line of homes offered with all their attractive features; and acquaint them with the totally new merchandising concept.

The first housing components could be exported from the U.S. to prove the potential, with the ultimate goal being the establishment of several manufacturing plants throughout Germany, to cut down on transportation costs. U.S. materials that are more competitive than those in Germany should also be exported.

The opportunity is here—problems yes, but not insurmountable; after all, problems are the price of progress, and the ultimate results should be very fruitful.

German residential construction offers many sales chances to U.S.

Housing shortage expected to last at least another 2 to 3 years; traditional tastes hinder introduction of new and untried goods

By HERMAN SARKOWSKY
President, United Homes Corp.
Federal Way, Wash.

The residential construction industry of the Federal Republic of Germany appears to offer a good potential market for U.S. building products.

The industry, which accounts for almost $6 billion of business annually, has had remarkable growth since 1948, but is still not producing the necessary volume to properly house all German families. Government sources indicate that it will be 2 or 3 years before adequate housing has been provided for those now in need of shelter.

Single family residences, although now constituting only 30% of the total market, promise much growth in years to come, and should prove a fertile area for many U.S. products.

Before any U.S. businessman attempts to penetrate the German market with his building products and equipment he should study a number of features of the German residential construction industry.

The average German considers any house or apartment he purchases as the one and only dwelling he will acquire during his entire lifetime.

This manifests itself in massive, costly building products and expensive methods of construction. The Germans appear reluctant to accept less costly products, if they do not visually give the impression of long life. The thickness of walls, both wood and masonry, are excessive for their designed use.

The obvious result of such a tradition has been high housing costs, which eliminate many middle income families from the housing market. There appears to be some weakening, however, in this traditional outlook and many German construction executives are ready to innovate.

The shortage of both skilled and unskilled labor in Germany must be recognized and evaluated. There are 1 million foreign workers, mostly unskilled, employed in Germany. Many of them are being utilized in the construction industry. According to Government sources there is no relief in sight, and almost all German industries are still actively recruiting foreign labor.

Therefore, a need exists for all types of labor saving devices. Products which can be assembled, installed or applied with unskilled or semi-skilled labor are of great importance since in the conventionally-built structure 38% of the total cost is for labor. Although total construction costs have risen 83% since 1950, labor costs have increased by 173% during the same period.

The construction industry in the Federal Republic is extremely well organized. There are 21 principal trade associations each having numerous regional chapters. There are 5 important major associations for architects and engineers.

Producers, wholesalers and retailers of construction supplies and associations appear to exert tremendous influence, not only upon their own members, but also on all forces directly or indirectly connected with the industry. The acceptance of any new product, and its ultimate successful distribution could depend in part on the evaluations of these trade associations.

The role of the architect in the German construction industry is somewhat different than his counterparts in the U.S. Not only does he have primary responsibility for the design of the structure, but he handles the selection of all materials and products, selects the contractor, all sub-contractors, and finally assumes the task of organizing and expediting the physical construction.

This system does not lend itself to cost savings or the economies of standardization.

Quite the reverse is true, since the architect does not appear to encourage the use of standard components or cost saving systems.

There are, of course, exceptions. However, it must be noted that the architect's role in the selection of products is of primary importance, and the acceptance of new materials and products depend somewhat on how well he is sold.

Finally, the role of Federal, State (Laender) or local government must be considered. Of the three, the regulatory

BDSA booklet

An analysis by the U.S. Embassy in Bonn, of the German construction industry in 1963 and the outlook for the future is available on loan to U.S. firms from BDSA's Trade Opportunities Staff.

The main body of this report sets forth a brief analysis of the construction industry. There are 2 appendices, the first of which deals with the legal basis of land utilization and zoning in the Federal Republic. Appendix 2 briefly sketches the problem of building codes.

Address requests to the Trade Opportunities Staff, Business and Defense Services Administration, U.S. Department of Commerce, Washington, D.C., 20230, or telephone WO 7-4674.

functions of the State and local authorities are most important to the U.S. businessmen. These can be compared to "Local Building Codes" in the U.S. and set specifications, standards and other regulatory requirements for residential construction.

The Mission was given many examples of code requirements. Work to bring them up to date could be completed before the end of 1964.

The important thing for U.S. businessmen to recognize is the absolute need to obtain approval from these governmental agencies prior to making any large scale commitments. It is in this capacity that a well respected and competent German Trade Association could be of great value to an U.S. manufacturer.

Many of the larger firms in the wholesaling and distribution field have highly competent technical staffs and could assist in obtaining government approvals.

Mission members feel that the exceptional adherence to tradition constitutes the major problem for new and untried products in the German housing market. However, the 135 interviews conducted by the Mission resulted in many requests for distribution of U.S. goods. Products which appear to have good market possibilities are:

★ **Sliding aluminum windows.** Almost all windows used in residential construction are made of wood. The wood is generally imported either from Africa or one of the Scandinavian countries. Builders claim that these units are up to 50% cheaper than any aluminum units they could purchase. The aluminum units being sold on the German market have extremely heavy extrusions and seem better suited for office buildings than homes. Aluminum windows suitable for use in cold, damp climates should find a good market.

★ **Sliding aluminum patio doors.** These doors do not only have an application in single family homes, but could find a large market in the apartment field. Almost all new apartment units being constructed in Germany feature individual balconies for each unit. The patio door is generally recognized as the most economical method of providing both egress and light. These doors should be suitable for the installation of an insulating type glass, and have heavier than average locking devices.

★ **Small portable power tools.** Such items as pneumatic nailers, electric powered saws, drills, routers and planers are beginning to be used in quantity.

★ **Insulation.** Certain types of roof insulation seem much in demand, both the type which can be blown into attic areas, and the sheet type suitable for flat or low pitched roofs.

★ **Under-counter dishwashers.** Even in single family dwellings costing more than $50,000, only portable dishwashers are being utilized. Builders generally agree that they would prefer the under-counter type but seem unable to buy them at what they considered a reasonable price. There were a number of inquiries about such a product.

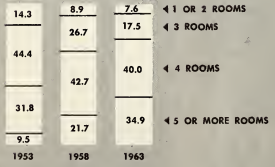
★ **Asphalt roofing shingles.** Much of this type of roofing now being used in the Federal Republic is imported from England. The price paid for such material appears quite high. A great many builders commented on this and representatives of distribution outlets requested the names of U.S. manufacturers.

★ **Maintenance items.** There appears to be a need for additional rust preventives, and other such items suitable for the maintenance of metals and machinery. In addition, cleaning compounds

Bigger, better houses in Germany*

MORE ROOMS

(IN % OF UNITS COMPLETED)

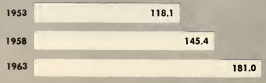


MORE FLOOR SPACE

(IN SQ. FT. PER DWELLING)

MORE ONE-FAMILY HOMES

(IN THOUSANDS OF COMPLETIONS)



CENTRAL HEATING

(IN % OF UNITS COMPLETED)

*Federal Republic excluding Berlin; 1963 figures include Saarland.

suitable for concrete and masonry received much attention.

★ **Aluminum tub and shower enclosures.** There should be a good market for this type of item. The typical German home and apartment features a hand shower attached to the tub by a flexible metal hose. This type of installation should require the use of a tub enclosure.

★ **Portable heating equipment.** Winter building in Germany is a tremendous problem, and most contractors will not ordinarily attempt it even though the German Federal Government pays a premium for winter building. This type of heating equipment with the proper blowers should find a good market.

★ **Mechanical dry wall tools.** The use of dry wall plasterboard is becoming more prevalent, creating need for better tools. There were many inquiries for mechanical tapers, sanders, and similar equipment.

★ **Lightweight paint sprays.** These received considerable attention as the interviews progressed. Equipment is needed which can be used profitably in small, individual structures.

★ **Hot water heaters.** The individual new German house still features small hot water tanks located above the kitchen sink, or the bathtub. Some progress could be made in selling centrally installed and operating hot water tanks.

★ **Plumbing fixtures.** It is estimated that of the 17.1 million housing units in Germany today 3.5 million need some sanitary facilities. Even the equipment being installed in newly constructed living units in many instances do not compare with U.S. standards.

★ Swimming pools. Surprisingly enough there is a strong demand for small swimming pools which utilize plastic liners.

There are of course many other marketing opportunities in Germany for U.S. building products. The pattern of German life is changing rapidly, and in many ways is akin to our own. Differences, however, do exist and will continue to exist. These differences must be recognized, appreciated and then reconciled into the marketing approach. To do a really top selling job the following ideas might help:

► Send a company representative to the Federal Republic to gather first hand information from responsible authorities.

► Utilize traditional methods of distribution now available in Germany. Many of the larger firms have excellent staffs, know the import-export markets, and can be of immeasurable assistance in obtaining code clearances.

► There is a high regard for U.S. products, however, the product must be of sturdy construction and top workmanship.

► It is important to participate in the annual building trade shows. The show that the Mission attended in Munich was extremely well attended, and was a wonderful showcase for the entire building material and product industry.

► Match the credit terms now available to German distributors from other sources.

► It is extremely beneficial to have a person in top management who can speak German.

Opportunities do exist, they need only to be sought, thoughtfully cultivated, and carefully harvested.

Tariff information on individual items may be obtained from the European Division of the Office of International Regional Economics (OIRE), Bureau of International Commerce, Department of Commerce, Washington, D.C., 20230.

Trade statistics for specific commodities are available in OIRE's International Trade Analysis Division.

CENTER OF COLOGNE: Modern construction circles well-planned traffic interchange. (German Info. Ctr.)

SOCIAL INSURANCE

Germany has a social insurance system of long standing which provides for compulsory sickness, disability, workmen's compensation, unemployment and old-age insurance. The plan covers about 90% of the working population.

FINAL CONFERENCE: After plant visits and interviews in 7 cities, Mission interviewed by press in Bonn.

Wood use in German building on increase; incentives are lower costs and less time

Half of prefabricated units are of wood; if this ratio holds, consumption may increase 5-fold in 2 years

By DANIEL H. BROWN, JR.
Douglas Fir Plywood Association
Tacoma, Wash.

In Germany, wood is not generally considered a structural material from which to build a permanent building. The bulk of construction—residential, commercial, and industrial—is with concrete block, reinforced concrete, and clay bricks. Even though the quantities of wood and wood-base materials in building is rather small today by U.S. standards, the amounts are increasing. A number of German and foreign manufacturers and builders are actively promoting wood housing. The prime incentives to buy an all-wood house are lower cost and shorter construction time, advantages that are hard to ignore in an economy where housing is in such short supply and is so expensive.

At present, prefabricated housing represents only about 4% of the housing units being built annually. Half of these units are of wood and the other half are of reinforced concrete and other materials. Government officials expect that in 2 years 20% of the housing units will be prefabricated. If half of those are of wood, consumption of wood in housing will undergo a 5-fold increase.

If this increase is actually going to take place, some strong prejudices against wood construction will need to be overcome. The lower cost of wood construction is a strong incentive for discarding these prejudices.

Roofs framed with wood

Use of wood in building construction in Europe dates back several hundred years. Houses and churches, properly designed so that conditions conducive to deterioration could not develop, have been in existence for 200, 300, 400 years and more. The wood parts of these structures were generally quite massive. In more modern times the pitched roofs of residential buildings—single and multi-family—have been and are being framed with wood.

Typically, the pitched roofs are framed with 3- or 4-inch nominal width rafters at spacings of 2 to 3 feet, across which are placed 2x3-inch nominal or smaller battens at 12 to 16 inches on center. Clay or concrete tile are laid on the battens in an interlocking fashion with no fastening to the battens or rafters. Top floor ceilings are of wood or concrete construction.

Industrial buildings are generally of reinforced concrete, though there are exceptions even here. At one factory for producing precast concrete wall, floor, and roof slabs up to 10x20 for residential buildings, a high roof had been built over the material storage area. Steel columns, a steel girder, prestressed concrete beams and wood roof purlins topped with a wood roof deck made up this structure.

Popular beliefs

We were told that the wood roof deck was the cheapest system. Inside the factory all roof construction was concrete. Wood was not used there, we were told, because of the fear that because of temperature differences between inside and outside, deterioration would result. This latter belief is not borne out by the successful use of hundreds of millions of square feet of wood roof deck in the United States.

Another popular belief is that a wood house is not capable of functioning satisfactorily in a cold climate. The feeling seems to be that a masonry wall is superior to an insulated wood frame wall in terms of insulation value. The climate in most of Germany is not as severe as that in the upper Midwest and northern New England.

Wood is frequently used as decorative wall paneling in the higher cost apartment and single-family construction. Occasionally the ceiling of a dining area will be vaulted and paneled with patterned lumber. Wood floors in parquet, herringbone, and other patterns, of both hardwood and softwoods, are widely used throughout the living and sleeping areas.

Prefinished flooring

With few exceptions, the wood for these interior applications is not prefinished as it is in many instances in the United States. In spite of the presence of a score of domestic manufacturers of hardwood flooring at the Building Materials Fair in Munich, one wholesaler was very much interested in importing prefinished hardwood flooring from the United States.

Because the traditional housing is of masonry, some of the wood houses are massive by U.S. standards. In the United States a typical exterior wall, consisting of 2x4 studs spaced 16″ on center (o.c.), siding and sheathing, or combination siding and sheathing, insulation, and gypsum wall board has a weight of 6 to 7 pounds per square foot of surface.

The walls of two full-size prefabri-

cated wood houses on display at the Munich fair had weights (without siding) in excess of 10 pounds per square foot. Siding in one case was cement-asbestos shingles and in the other, stucco. Vertical framing consisted of 4x4's spaced about 16" o.c., sheathed inside with ⅞" tongue and groove boards applied diagonally and faced with gypsum wall board and on the outside with spaced boards to which the siding was attached. Rock wool insulation was used in the wall cavity.

Quality fairly high

Wood for such structural applications seems to be of fairly high quality. It was the feeling of one timber research director with whom we conversed that wood for structural purposes could properly have tight, sound knots, but that knotholes should not be permitted. Trading rules for structural lumber in the United States are based in part on admission of knotholes, knots, and other growth characteristics not exceeding specified sizes and within certain areas of the lumber piece.

In wood buildings and even in precast concrete apartments wood windows and doors seem to be preferred, although aluminum, steel, and concrete framed windows are being promoted. In one apartment development being built with reinforced concrete units prefabricated in Denmark, all components were of concrete except one wall in each living room. The wall facing the balcony was completely of wood construction. Vertical wood elements were spaced about 16" o.c. and faced on the inside with particle board and on the outside with a patterned horizontal wood siding, screwed in place, and with a natural finish. The wall was insulated.

One German importer of American softwood lumber complained that the quality of lumber tended to vary excessively from one shipment to the next, causing him considerable difficulty in disposition. This was true in spite of the fact that the lumber was all to be remanufactured into window frames, furniture parts, and other items. One possible cause of the difficulty was a misunderstanding of the definition of the grade.

Panel products utilizing wood fibers, flakes, and chips are popular in Germany and are widely used with wood veneer or plastic overlays in furniture, cabinets, and paneling.

Wood is widely used as a construction material for items which do become a part of the completed structure. Wood scaffolding of split poles, paired together with round dowels, is common throughout Germany, though it apparently is being replaced by tubular steel systems.

Business contacts

U.S. businessmen seeking trade or business contacts in the Federal Republic of Germany or West Berlin may consult with the German Embassy, Office of Commercial Counselor, 4645 Reservoir Rd., NW., Washington, D.C., 20007.

The German Government maintains Consulates General at the following addresses: 460 Park Ave., New York, N.Y., 10022; 104 S. Michigan Ave., Chicago, Ill., 60603; 601 California St., San Francisco, Calif., 94108; 3450 Wilshire Blvd., Los Angeles, Calif., 90005; and 1055 St. Charles Ave., New Orleans, La., 70130.

The German Government is also represented by Consulates at 55 Marietta St., Atlanta, Ga., 30303; 462 Boylston St., Boston, Mass., 02116; 2711 Book Bldg., Washington Blvd., Detroit, Mich., 48226; 3600 Yoakum Blvd., Houston, Tex., 77006; 1102 Grant Ave., Kansas City, Kans., 66106; 55 Public Square, Cleveland, Ohio, 44113; 12 S. 12th St., Philadelphia, Pa., 19107; and 3d and Stewart Sts., Seattle, Wash., 98101.

The United States maintains an Embassy in Bonn, a Mission in West Berlin; Consulates General in Bremen, Duesseldorf, Frankfurt/Main, Hamburg, Munich, and Stuttgart; and a Trade Center at Frankfurt/Main.

Wood forms are used for practically all concrete which is cast in place. Architects in some instances specify that rough boards be used to obtain a rough texture on large surface areas. In a manufacturing plant set up to produce precast concrete building elements for several hundred units in an apartment complex, plastic overlaid plywood forms were in use. This operation was designed so that it could be dismantled and moved to the next development.

FOREST LANDS

The 17 million acres of forest lands of the Federal Republic comprise about 28% of the total land area. Coniferous trees grow on two-thirds of the forested area. Annual cuttings in recent years have ranged from 32 to 35 million cubic yards of trunk timber with bark.

German building centers display latest products

Germany's building exhibition centers offer U.S. firms year-around possibilities for bringing their products to the attention of interested Germans. Located in many of the leading cities, these centers are showcases for the latest developments in construction materials and methods.

Some of the facilities, such as those in Munich, include both indoor and outdoor exhibit space. Others, like those in Hamburg, are housed in modern buildings in the hearts of important business districts. All of the centers are visited frequently by builders and contractors, architects, craftsmen, engineers, dealers.

Equipment featured

Displays feature equipment such as air-conditioning, ventilating, and heating units; textiles and floor coverings used in interior decorating; bathroom and kitchen fixtures and appliances; and construction materials for acoustics, insulation, and other purposes.

Special exhibits are devoted to construction methods and prefabricated parts, including houses and components. Materials and equipment for terraces, swimming pools, and vacation houses also are featured. Facilities of most centers also include an auditorium where film showings and lectures may be held.

Monthly rental fees are generally low and in some cities there is no time limit on maintenance of a stand. In Munich, for example, over one-third of the exhibitors have maintained their stands for a full decade. A fee may or may not be charged, depending on the city, for the distribution and explanation of printed material on behalf of individual firms.

The most recently established of the exhibits was the Bauzentrum Berlin (Building Center Berlin), which opened its doors late in 1963. A decade earlier, the first Bauzentrum was established in Hamburg. Since then similar centers have appeared in Munich (1954), Darmstadt (1955), Bremen (1958), Essen (1961), Hannover (1962) and Bonn (1963).

Additional information and addresses may be obtained from the Arbeitsgemeinschaft Deutscher Bauzentren (Working Association of German Building Centers), Darmstadt, Germany. The association publishes a bimonthly magazine, *Das Bauzentrum*.

TYPICAL HOUSING: Apartment buildings account for a large percentage of dwelling construction in Germany; four-story structures, with porches, are seen frequently. (German Information Center photo)

Labor-saving machinery, new materials for apartment construction should sell

Multifamily dwellings comprise 90% of units built annually in Germany; need for faster production, lower costs seen

By JULIAN KHEEL
President, Royal Meadow Homes
Rochester, N.Y.

About 570,000 dwelling units are built per year in Germany. Of these units, approximately 70% constitute apartment houses and the remaining 30% single- or two-family dwellings. This preponderance of multi-family units has its basis in the acute shortage of land in and around the large populated areas; in the high concentration of people in a small area; and in the strong conviction among all Germans that the present green town areas should not be infringed upon.

Despite the desire of many to own their own homes it is safer to assume that apartment house construction will continue to account for a large percentage of all future dwellings built in Germany.

Generally, new apartment houses in Germany are four stories high or eight stories and higher. Elevators are required by building regulations in structures of more than 4 stories. Therefore where elevators must be used, economy usually points to a building much higher than 4 stories.

Use reinforced concrete

Another regulation restricts the use of wood for structural purposes in buildings over two stories. Therefore, practically all apartment construction is reinforced concrete with masonry walls. We have observed that there is little use of structural steel in this type of construction.

The on-site construction of these apartment houses is similar to the form and pour type of construction used in the United States. There are, however, two principal differences: Little plywood is used in the form work—forms often are built in tongue-and-groove wood sheathing boards; and almost all the concrete is mixed on the site.

A familiar sight on all construction jobs is a small tower crane surrounded by a pile of sand and a pile of gravel, a large metal cylindrical container for storing cement, and a mixing machine. A concrete transit mix truck is a rare item in Germany.

It is my opinion that due to the constantly increasing labor cost, it is possible to sell construction machinery, equipment, and materials for this market, providing they have as a principal function—labor saving.

Possible products are plywood or lightweight steel forms for concrete work, machinery to construct centrally located concrete plants, and transit-mix concrete trucks needed to transport concrete.

A U.S. firm wishing to do business with the German construction industry must recognize that usually construction supplies and equipment are large and bulky. Therefore transportation costs to Germany from the United States present a problem. Licensing and joint venture arrangements appear to offer solutions.

Concrete prefabrication

Since 1961 a new system has been introduced into the multifamily building industry in Germany. Using the Coignet technique developed by the French, a concrete prefabricated housing industry is developing rapidly. In a central plant under factory conditions large reinforced concrete panels for walls, floors, and ceilings are manufactured for assembling in the field. These sections have wiring, windows, and doors already installed. In some, plumbing and heating lines have been installed as well.

The interior face of the walls and ceilings are troweled to a smooth finish so that all that is needed is paint or wall paper. The exterior face of the walls has a decorative finish, such as ceramic tile preinstalled in the factory. These buildings have been built as high as 17 stories.

The prefabricated industry is developing to speed completion times and reduce costs. Presently it takes about twice as long to complete a construction project in Germany as it would in the United States. A reduction in completion time to that prevalent in the United States has been achieved by prefabrication of these buildings.

Cost reductions, however, have not yet been achieved. A prefabricated apartment house and a conventionally built apartment house are about equal in cost. The concrete panels are bulky and a limited number can be trucked to the job site at one time.

Automation needed

Although the industry has made great and ingenious strides in setting up plants and equipment to manufacture these buildings it is still felt that more automation is needed for cost reductions. Finally, the capital cost of these plants is excessive for the number of units that can be produced per year. In a short time, however,

this new industry has been able to obtain —with some Government subsidy—a good foothold in the apartment building market. I believe that the future for this industry is bright. It is also my opinion that U.S. firms can find a market for their products in the following fields:

► Machinery for improving automation in production of reinforced concrete panels;

► More ingenious hauling equipment for these panels—it is desirable to haul more panels per truck at a faster rate over a longer distance;

► Concrete that is lighter in weight but as strong or stronger structurally than the concrete now in use in the Federal Republic.

Panels are hauled by various means. One firm ships its panels in a gondola railroad car. When it reaches its destination, the car is picked up in its entirety by a crane and placed on specially built rubber-tire supports. The railroad car with its load is trucked to the job site.

In my opinion the condition of the multifamily housing industry in Germany would benefit by radical changes. Costs are climbing too rapidly, production is too slow. There is a rising demand from all parties concerned, Government as well as business, for a solution to these problems. It may be a good time for U.S. firms to get in on the beginning of the changes and thus help create the new face that this industry needs.

CONCRETE PANELS: For floors, walls, and ceilings, sections have wiring, windows, and doors installed; some have plumbing and heating lines as well. Equipment, machinery should sell in this market.

Publications for International Traders

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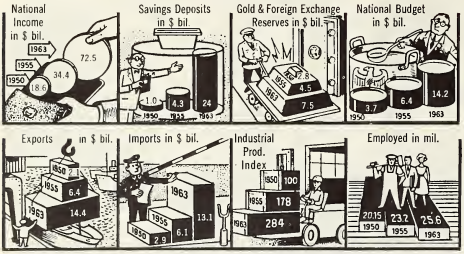
Background: German economy, trade patterns

GERMANY BUSTLES AHEAD



Courtesy of German American Chamber of Commerce, Inc.

Germany—land of rapid economic growth, brisk foreign trade and high industrial production

In labor-short market, industry seeks mechanization of facilities; export-import volume reaches new highs

As one of the largest customers for U.S. products, Germany has achieved rapid economic growth in recent years. Industrial production is at record volume, industrial and consumer demand is growing, wages are the highest in Europe.

The reconstruction of its economy has enabled the Federal Republic to regain Germany's position as one of the prosperous, stable, and influential industrial powers of the world.

All of the economic indicators demonstrate the economy's expansion. The index of industrial production (1950 = 100) rose to a postwar high of 310 in November 1962. The gross national products (GNP) at market prices rose from about $28.5 billion in 1951 to $94.2 billion in 1963. Real weekly earnings of industrial workers increased by 70 percent from 1950 to 1960. This trend continued in 1961 and 1962, despite shorter work weeks.

The economy is still expanding, though not at the rate achieved in 1960, when GNP increased by 8 percent in constant prices, or 1955 when an 11.5-percent increase was achieved. GNP continued to expand in 1961 by 5 percent; in 1962 by 4.4 percent; and in 1963 by approximately 3.5 percent in real terms.

The advanced state of the German economy is indicated by the fact that the two sectors making the largest contribution to the national product are the categories of services and manufacturing. The primary industries (agriculture, forestry and fisheries, and mining) make only a relatively small contribution to the national economy.

Active domestic and foreign demand, labor shortages, and the efforts of German manufacturers to cope with these through mechanization of facilities have enhanced the market for many kinds of industrial equipment, specialized machinery and tools. At the same time, rapidly rising wages and incomes have boosted consumer demand and pushed the price level up.

The Federal Republic has depended heavily on private enterprise to accomplish the economic recovery of Germany.

Conservative policies

As basic to economic stability, the Federal Republic has followed generally conservative monetary, fiscal and budgetary policies. The mark is very strong on international money markets, as the 1961 revaluation showed, and remained reasonably stable in domestic purchasing power until 1960, when a slow price and wage inflation began to gather force.

Although taxation has been fairly high, efforts have been made to reduce the rates and to provide incentives to individuals and to industry, and the formation of private capital has been encouraged.

The Federal Republic's well-developed and highly diversified industry is concentrated in west-central and southwest Germany. It includes the Ruhr area and a broad strip along the Rhine extending to the Saar basin and the Stuttgart area, a region with the skilled labor, natural resources (coal and iron ore), and power necessary to make it one of the most productive in the world. Important industrial enterprises are also located in southern and northern Germany.

Scarcity of labor

Recent years have been marked by a continuing shortage of workers, demonstrated clearly by the existence of many more registered job vacancies than there are registered unemployed persons. This scarcity of labor has resulted in competition between employers on the labor market, and has thus put labor in a strong bargaining position concerning wage increases.

The number of unemployed in the Federal Republic averaged 174,000 a month in 1963, or less than 0.1 percent of the total working force.

Higher wages have attracted many women and agricultural workers into industry. German employers have also hired large numbers of foreigners; as of June 30, 1963, there were 804,000 foreign workers, among them Italians, Spaniards, Greeks and Turks, working in Germany.

German industry (not counting plants with less than 10 workers or construction

enterprises) employs 8 million people, a fourth of them women. This is about 40 percent of the total labor force. Annual sales of all German industrial concerns have climbed steadily in the past decade and totalled $73.7 billion in 1962. Export sales average 15 percent of total sales.

Trade unions active

Almost all industrial workers are organized in industrial trade unions, most of which are joined in the German Federation of Trade Unions with over 6.4 million members.

Trade union activity is concerned mainly with industry-wide collective bargaining. The postwar record of labor-management relations has been for the most part a peaceful one, with a minimum of strikes and with rising wages and shorter hours generally balanced by increased productivity.

A public agency, the Federal Institute of Labor Placement and Unemployment Insurance, selects qualified applicants for open positions, but the employer is free to hire or reject particular applicants as he sees fit. Comprehensive Federal legislation covers conditions of work, pensions, vacations, and dismissal.

The principal form of ownership in German industry is the corporation. Corporate ownership, including Government-owned and foreign-owned stock, is of particular importance in mining, in the energy, steel, and chemical industries, and in the electrical, textile, and machinery industries.

Foreign investment in corporations in the Federal Republic is equal to about 10 percent of the total nominal value of German corporate capital stock. Foreign participation is evident in all branches of industry, but is particularly important in the petroleum, automotive, coal mining, electrical, and margarine industries. U.S. direct investments in the Federal Republic were estimated to be $1.47 billion at the end of 1962.

Sharp increase

Net industrial production in 1963 was almost 3 times the level of 1950. It was paced throughout this period by the output of the producer and investment goods industries, although since 1956 a sharp increase in demand for consumer goods, especially durables, has had an increasing effect on total output.

Of total industrial sales amounting in 1962 to more than $73.7 billion, industrial materials, producer goods and investment goods accounted for $49 billion, or 66 percent. About 15 percent of industrial materials and producer goods and 23 percent of investment goods are exported.

Handicraft enterprises, once endangered by increasing industrialization, regained importance as technology opened new fields for specialized small enterprises and skilled workers. Sales rose from about $4.8 billion in 1949 to $23 billion in 1962.

Construction, metalworking, and foodstuffs account for 73 percent of handicraft workers and 80 percent of the value of handicraft output.

Power output up

Total production of electrical power in 1962 was 135 billion kilowatt-hours and total installed capacity was over 22,000 megawatts.

The production of electricity has increased enormously since the early postwar period with the construction of new public utility facilities, chiefly new hydroelectric stations in southern Germany and new thermal plants fueled by brown coal in northwest Germany.

If the current rate of increase continues, the output of electric current will be doubled in less than 10 years. The steady increase in industrial consumption of electric power reflects the general increase in industrial activity. The rising standard of living, accompanied by steadily increasing sales of electrical house appliances, has been another factor contributing to the rapid growth of demand.

Major supplier

The United States is Germany's major supplier, selling it an estimated $1.97 billion worth of goods in 1963. In the same year, Germany exported around $1 billion worth of its products to the United States. Main U.S. exports to Germany are machinery, chemical products, edible fats and oils, nonferrous metals, motor vehicles and aircraft.

Germany has increased its liberalization of imports from the dollar area, since 1954, so that virtually all nonagricultural products may be imported free of quota restrictions.

In the decade between 1950 and 1960 Germany's share of world trade rose from 4 to nearly 10 percent, and Germany now ranks among the three leading world-trading countries, together with the United States and the United Kingdom.

Export, import patterns

Between 1950 and 1962, German exports grew sixfold, while the gross national product only tripled during the

Market profile—Germany

Population: Including West Berlin, 57.8 million—about three-quarters urban—in an area of 95,928 square miles. About 19 million households.

Currency: 4 German marks = $1. Germany is a member of the International Monetary Fund.

Gross national product: At market prices, $88.7 billion in 1962 and $94.2 billion in 1963.

Economy: Primarily industrial. About half of GNP is accounted for by mining, power, manufacturing, and construction; about one-fifth by trade, transport, and communications. Principal industries: Steel, machinery, automobiles, precision instruments.

Communications: 23,000 miles of railways; 88,700 miles of improved roads including 1,800 miles of superhighways; 2,700 miles of navigable waterways including 700 miles of canals; 9 commercial airports; 5 major seaports; 7.5 million passenger automobiles; 17.1 million radio sets; and 8.8 million television sets.

Foreign trade (in millions of dollars):

	1962	1963
Total imports	12,391	13,075
Total exports	13,273	14,575
Imports from U.S.	1,760	[1]1,975
Exports to U.S.	966	[1]1,050

[1] Preliminary data

Principal imports from U.S.: Machinery, chemical products, motor vehicles and aircraft, nonferrous metals, hard coal, grains, and edible fats and oils.

Map courtesy of Bremen Institute of Economic Research.

same period. Exports in 1962 were valued at $13.3 billion dollars and reached an estimated $14.5 billion figure in 1963.

Exports consist predominantly of manufactured products; finished goods alone account for over 80 percent of total exports and have made up an increasing share of exports every year since 1950, when they accounted for 65 percent of foreign sales. The most important German exports are machines and machine tools, chemicals, and vehicles and ships.

The sterling area and Western Europe take the major portion of German exports, some 65 percent. Latin America, Asia and Africa together take about 20 percent, the dollar area about 8 percent and the Soviet bloc about 4 percent.

Germany's principal customers were France, the Netherlands, Italy, and Switzerland in 1962, while the United States dropped to fifth place from first in 1959.

German imports rose from approximately $2.7 billion in 1950 to almost $12 billion in 1962 and an estimated $13.1 billion in 1963. At the end of 1962, 27.6 percent of German imports were agricultural commodities, 53.7 percent semifinished and finished products, and 17.8 percent raw materials.

TEMPERATE CLIMATE

Germany has a temperate climate with prevailing westerly winds and rainfall throughout the year. The temperatures range from a July average of about 65 degrees F. in the northern lowlands and about 75 degrees F. in the southern areas to a January average of about 30 degrees F. in the north and about 20 degrees F. in the mountainous regions.

Annual rainfall throughout the country averages about 27 inches but is more than 40 inches in the southern Alpine zone.

Trade lists available

Trade lists containing the names and addresses of firms in the Federal Republic of Germany are available for $1 per commodity classification from the Commercial Intelligence Division, Bureau of International Commerce, U.S. Department of Commerce, Washington, D.C. 20230, or from any of the Department's Field Offices.

World Trade Directory Reports on individual firms are available from the same sources for $1 each.

CHANGING SCENE: With West Berlin's building boom underway, Ernst-Reuter-Platz, shown here, will include more multi-storied office buildings about the square. (Photo: German Information Center)

Berlin building boom could spur exports for certain U.S. products

Construction investment far exceeds overall West German pace; shopping centers, industrial projects reflect confidence

The scope and dynamism of West Berlin's building program reflect growing confidence in the city's economy and may offer market opportunities for certain U.S. construction supplies and allied products.

Growth rates show that 1963 investments in West Berlin's construction projects increased 9.5 percent in real terms over 1962 levels, which had been 7 percent greater than 1961. Comparable figures for construction investments in the Federal Republic of Germany indicate that the growth rate slipped from 5 percent in 1962 to a more modest 2 percent in 1963.

Among the commercial projects now in the planning stages, two warrant special mention.

Large centers planned

In the northern part of the city a shopping center is being planned to meet the needs of the 50,000 consumers who will live in the community to be known as "Maerkisches Viertel."

The total cost of the entire community will be about $125 million, with $6.5 million set aside for business facilities which will include department stores, supermarkets, restaurants, cinema and bowling alley, and a wide variety of specialty shops.

Builder-owner is the Gesellschaft fuer Sozialen Wohnungsbau gemeinnuetzige Aktiengesellschaft, Berlin (GESOBAU). Principal contractor is the newly founded Werner Limberg & Co. KG, Berlin.

In the southern part of the city there will be a $10 million shopping center in the community known as Gropius-Stadt, the second largest shopping center in Germany. This project will be financed by George Ray Dobbs of Miami, Florida.

Late in 1963, the cornerstone was laid for an $18-million business and entertainment complex to be known as the "Europa-Center," located in the heart

TRADITIONAL STYLING: Porches or balconies often used in German residential design paint up market for aluminum sliding doors and windows.

of West Berlin. This was followed in mid-January by the announcement that the Hotel Berlin would break ground this summer for its $3.5-million addition, making it the tallest building and largest hotel in the city. These developments are expected to unleash an office building boom in the area between the 2 new projects.

Public works projects

An extensive program of public works has been initiated to make Berlin a more attractive place to live and work, and to develop the city into a universally recognized leader in the arts, sciences and education.

University buildings, apartment houses, schools, libraries and hospitals are being planned and built with the aid of public funds. New hospital projects reportedly will involve outlays of $34 million in 1965.

Berlin's subways and freeways are being extended to cope with growing traffic problems. More than $9 million will be invested during 1964 in the city's central market for fruit and vegetable wholesalers.

Special fund increased

A special fund exists to finance and stimulate remodeling activities in the city. In January 1964 the municipal authorities moved to increase the fund from $5 million to $12.5 million to cope with the pressing need for renovation.

A further manifestation of the growing faith in Berlin's economic future was the December announcement that AEG, one of the major German electrical corporations, will invest $16.25 million in the largest postwar industrial project in West Berlin.

Names of the architects for some of the individual projects are available on request from the Bureau of International Commerce, European Division, U.S. Department of Commerce, Washington, D.C. 20230.

German transportation network offers choices of navigable waterways, superhighways, railroads and air services

Diversified transport serves needs of highly industrialized nation

While distances within Germany are comparatively small, the country is served by a remarkably developed and diversified transportation network—including 2,700 miles of navigable waterways.

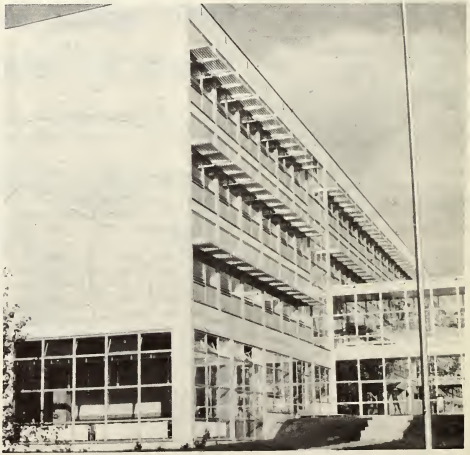
The two most widely separated business centers are Hamburg and Munich, which are only 500 miles apart by train. Travel time between these two cities is 10 to 12 hours by rail, 10 to 14 hours by automobile, and 2 hours by air.

Travel time from Frankfurt to Duesseldorf is 3 hours by train or automobile and 1 hour by air. The distance from Frankfurt to Duesseldorf is about 125 miles, from Duesseldorf to Hamburg about 250 miles, and from Hamburg to Hannover almost 125 miles.

Inland shipping (with operating costs averaging 0.12¢ a ton kilometer, according to *German American Trade News*) is the second largest carrier in the Federal Republic of Germany. The railroads (averaging 0.5¢ a ton kilometer) still handle the largest part of the freight business, however. Trucks account for 15 percent. Since the waterway network is extensive, its competition is a major factor in most areas of the country.

Heavy traffic

The most important waterways are the Rhine and its tributaries, which carry



EDUCATIONAL PLANT GROWS: Secondary school in Goeppingen helps fill need for added facilities. New long-range $1-billion building program calls for four new universities and a technical institute.

more traffic than any other river system in Europe, and the canal network between the Ruhr and Emden.

The inland waterways fleet has expanded considerably, mainly through the building and purchasing of self-propelled vessels.

Traffic on the inland waterways has increased because of the expanding German economy, and particularly because of the greater industrial demand for coal, ores, oil, and other industrial raw materials. Freight traffic on the waterways averaged over 14 million tons a month in the years 1960-62. Nearly 9 million tons a month were carried in German vessels.

The railway system consists of a network of about 23,000 miles; nearly 85 percent is operated by the Federal Railways on behalf of the Federal Republic.

Conversion of the Federal Railways from steam-operated engines to electric and diesel engines is making steady progress. About 15 percent of the total network was electrified by the end of 1962.

The Federal Railways carried 1 billion passengers and the non-Federal railways about 102 million in 1962. In addition, the Federal Railways carried 322 million metric tons of freight, a larger amount than that carried by inland waterways and trucks combined. Non-Federal lines carried 99.4 million tons.

The number of motor vehicles has increased rapidly in the past decade, placing an ever increasing burden on Germany's overloaded road network. By July 1, 1962, 6.1 million passenger cars and almost 750,000 trucks were registered.

Roadbuilding program

An ambitious roadbuilding program was begun in 1959. This program, scheduled for completion in 1968, includes the building of about 1,250 miles of new superhighways and the construction or rebuilding of 6,800 miles of Federal highways. There are now about 1,800 miles of 4-lane superhighways or Autobahn.

Although the amount of freight carried by trucks has increased steadily in recent years—to about 100 million metric tons in 1962—it is still far below the amount carried on the inland waterways and by the railways.

Free trading areas

Hamburg, Bremen, Bremerhaven, Cuxhaven, Emden and Kiel have free port facilities where foreign goods may enter without customs declaration or inspection. Goods may be stored there for an indefinite period and may also be repacked, manipulated or improved as prescribed by special regulations which vary in the different areas.

The large free zone in the port of Hamburg, Germany's main port, offers extensive privileges. Various types of industrial plants are permitted to operate in this free zone—improving foreign manufactures and reexporting or shipping them in transit without going through all the customs procedures.

About two-thirds of the German mercantile fleet was destroyed during World War II. The remainder was seized by the Allied Powers at the end of the war, but a limited tonnage of coastal shipping was handed back. Since that time, the fleet has been rapidly restored by construction, purchase, and charter until it now exceeds 5 million gross registered tons.

The net registered tonnage of vessels arriving at German ports from abroad in 1961 averaged 4.3 million tons a month —about three times the amount arriving monthly in 1950.

Latecomer

Civil air transport is a latecomer in the German postwar transport field. Until a few years ago, the Federal Republic was served only by foreign air services. Deutsche Lufthansa began commercial operations in 1955, the year which marked the return of air sovereignty to the Federal Republic.

Lufthansa's services connect West German cities with others in Europe and also with North and South America, Africa, and the Near, Middle, and Far East. For the development of all phases of civil aviation, the Federal Government spent DM 946 million during the period 1955-60.

Airport facilities are now considered adequate for present commercial demands; construction work is taking place at many of them to keep abreast of increasing traffic requirements.

The Federal Republic now has 9 commercial airports—at Hamburg, Frankfurt, Bremen, Duesseldorf, Hannover, Cologne-Bonn, Munich, Nuremberg, and Stuttgart. West Berlin is served by commercial airports at Berlin-Tempelhof and Berlin-Tegel.

PERMANENT HOUSING EXHIBITS

Eight German cities now have Bauzentrum or building centers for displays of building equipment and supplies—from textiles to appliances, swimming pools and vacation houses. Monthly rental fees are generally low. Information may be obtained by writing to Arbeitsgemeinschaft Deutscher Bauzentren (Working Association of German Building Centers), Darmstadt, Germany.

CITY SCENE, HAMBURG: New Unilever building shown under construction introduces a high point on the busy city's skyline. (German Info. Center)

PUBLICATIONS ON GERMANY

Additional information on the Federal Republic can be obtained from several U.S. Department of Commerce publications. Copies of these can be ordered from any Commerce Field Office or from the Superintendent of Documents, GPO, Washington, D.C. 20402.

Basic Data on the Economy of the Fed. Rep. of Germany. OBR–63–156. 20 pp. 15 cents.

Preparing Shipments to the Fed. Rep. of Germany and West Berlin. OBR 62–30. 7 pp. December 1962. 15 cents.

Patent Licensing Agreements with Firms in the Fed. Rep. of Germany and West Berlin. WTIS, Part 2, No. 62–39. 4 pp. August 1962. 10 cents.

Customs Valuation under the Revised German Customs Law, Effective January 1962. OBR 62–22. 3 pp. January 1963. 15 cents.

Establishing a Business in the Fed. Rep. of Germany and West Berlin. WTIS, Part 1, No. 62–6. 24 pp. March 1962. 15 cents.

GERMAN LANGUAGE PREFERRED

German is the language preferred by most business firms. Every effort should be made to provide sales literature and operating instructions in German.

The agent or representative equipped with such materials enjoys a distinct competitive advantage over the agent whose promotional literature is available only in English.

SHOWCASE FOR AMERICAN PRODUCTS: Operated by the U.S. Department of Commerce, in cooperation with the Department of State, the U.S. Trade Center in Frankfurt offers manufacturers, on an industrywide basis, an inexpensive introduction on the German market—for sales or market testing.

Import duties on "wanted" building supply items range from 6.8 to 15.2%

A study recently conducted by a private research organization on the market possibilities for U.S. construction equipment in Germany disclosed a sales potential for a varied group of American manufactures.

The accompanying, partial list of "wanted" products includes the German import duties on articles of U.S. origin, together with the comparable duties levied on goods from the European Economic Community (shown in parentheses).

A duty is levied on the c.i.f.-value of a commodity at the German border or German port. In addition, a 6% turnover equalization tax (TET) is levied on the duty-paid value. The TET also applies on imports from EEC sources.

Air-conditioning equipment . . . 8.2% (2.4%); dehumidifying equipment . . . 9.6% (2.4%); lifting, handling, loading or unloading machinery . . . 9-9.8% (free to 3.2%).

Metal screening (windows) of copper . . . 9% (3.2%); metal screening of aluminum . . . 11.9% (3.2%); door knobs/metal fittings . . . 12.2% (4%); electric hand tools . . . 8.4% (1.6%); pneumatic tools . . . 9.5% (3.2%).

Oil burners . . . 9% (2.4%); electric fans . . . 13% (4%); prefabricated dry walls . . . 8.8% (2%); aluminum window frames . . . 13.8% (4.8%).

Sun blinds of textile fabric . . . 15.2% (6%); thermostats . . . 10.4% (3.2%); central-heating boilers, air heaters, unit heaters and radiators for central heating and parts (not electrical) . . . 10.2% (2%).

Ventilator grills and tubing . . . 6.8% (2%) carry a TET of 4%.

Further information on German import duties may be obtained from the U.S. Department of Commerce Field Offices or, by letter, from Bureau of International Commerce, European Division, U.S. Department of Commerce, Washington, D.C. 20230.

TO BUILD A HOUSE . . .

"Just imagine you unexpectedly inherited or won 50,000 DM ($12,500). What would you spend the money on first?" This was the question some thousands of citizens in the Federal Republic were recently asked. Of all those asked, 53% said they would decide on building a house of their own.

APPLIANCE SURVEY

A recent survey of German households disclosed that 87.9% are equipped with radios, 64.5% with vacuum cleaners, 60.5% with washing machines, 57.1% with sewing machines and 51.8% with refrigerators. In addition, 36.7% of German households have television receivers and 17.7% have record players.

German Republic's banking system active, varied

As one indicator of the thriving German economy, more disposable income was funneled into savings accounts in 1963 than in any previous year. Savings deposits in Germany reached an estimated $24 billion for the year from $4.3 billion in 1955.

Commercial banking transactions are handled by varied types of credit institutions and, to an increasing degree, by savings banks as well.

Nearly 350 commercial banks in the Federal Republic concentrate on short-term lending operations and provide about 60 percent of the total short-term credit volume available to business and private customers.

After the decentralization of the banking organization in 1945, and some subsequent interim arrangements, the three big branch banks, the Deutsche Bank A. G., the Dresdner Bank A. G., and the Commerzbank A. G. were reestablished in 1957. Their combined assets are about half the total assets of all the commercial banks.

Diversified

Another group of commercial banks is composed of the State, regional, and local banks, of which there were 96 in 1962. Their assets are about 40 percent of the assets of all commercial banks.

Mortgage banks, two-thirds of which are private undertakings, are principally concerned with home building and municipal development but also grant short-term credits.

Savings banks, 867 in number, with around 8,000 branches and payment counters, have played a dominant role among savings institutions.

Savings banks, as a rule, engage in both savings and short-term deposit transactions. They have to an increasing degree assumed functions which were previously the almost sole prerogative of the credit banks.

Credits extended by the savings banks are mostly loans to medium-sized and small firms and to the handicraft industries. The long-term loans of the savings banks have nearly doubled since 1958. The greater part of the long-term loans are used for housing, mainly low-cost housing.

Overseas traders, listed below, want to do business with American firms. Commodities they wish to buy or sell are identified by description and by Standard Industrial Classification (SIC) Manual number.

Other symbols used:

★—Additional information on the trade opportunity may be obtained by writing Commodity Export Promotion Staff, BDSA-111, Department of Commerce, Washington, D.C., 20230.

NCIA—No commercial information available on the overseas firm.

WTD—World Trade Directory report available. WTD reports give a description of the firm, its sales territory, size of business, sales volume, trade and financial reputation and other data. Copies can be bought for $1 each from the Commercial Intelligence Division, Bureau of International Commerce, U.S. Department of Commerce, Washington, D.C., 20230. Numbers following the WTD symbol show the date the report was issued.

I.R.—Interview Report, identified by following number, is available on the trader. These reports are compiled by the Trade Mission. Copies can be obtained from Trade Mission Division, Bureau of International Commerce, U.S. Department of Commerce, Washington, D.C., 20230.

Leads for Exporters

243 Millwork, Veneer, Plywood, Prefabricated Structural Wood Products

Manufactured building materials. Hans R. Marquart Grosshandel, An der Braukuhle 2-8, Bremen-Hemelingen. I.R. 100.

Building materials for floor and wall coverings. Paul & Co., Walfischgasse 10, 79 Ulm-Donau. I.R. 46.

Distributorship for wall, ceiling, flooring materials. Kloeckner Bayernkontor, 7 Sendlinger Tor Platz, Munich. WTD 6/26/63. I.R. 78.

Thin prefinished veneers suitable for use as wall panelling. Impex Handelsgesellschaft, Rembertistrasse 108, 28 Bremen. WTD 3/18/63. I.R. 25.

Wood products including moldings, baseboard casements, doors, windows. Prefabricated houses. Ing. Karlhans Mueller Holzimporte, 8472 Traunricht-Schwartzenfeld. I.R. 45.

Wood products for building industry including softwood plywood. Johann Scharf, Ladestrasse 43, Bremen. WTD 4/25/61. I.R. 8.

Hardwood flush doors machined and sized for German market. Industrie-Agentur Becker & Co., Donandtstr. 4, Bremen. WTD 4/3/63. I.R. 10.

Good quality, clear, softwood lumber. Franz A. Weyrich Jr., Schliessfach 5, Bahnhofstr. 19, Camberg/Taunus. WTD 5/14/62. I.R. 19.

Components for prefabricated houses and prefinished folding wooden doors. Roland Hess KG, 40 Schwabstrasse, Fellbach/Wuertt. WTD 4/16/63. I.R. 61.

Prefabricated house components including wall sections and interior partitions. Eternit AG, Kanalstrasse, Berlin-Rudow. WTD 6/2/58. I.R. 53.

266 Building Paper, Board Mills

Insulation material including roofing insulation board. Dr. Friedrich Nafzger Nachfl. Hamburger Korksteinfabrik, Billbrookdeich 217, Hamburg-Billbrook. I.R. 116.

Agency for insulation materials. Marlene Rabenstein Bauwaren OHG, Bau- u. Kunststoffvertretungen, Muehltalerstr. 73a, Munich 49. NCIA. I.R. 106.

Rigid insulation for flat roof decks, suitable for use under built-up roofing. Industrie-Agentur Becker & Co., Donandtstr. 4, Bremen. WTD 4/3/63. I.R. 10.

281 Industrial Chemicals

Bituminous roofing, paving materials, sealants used in building, road construction. Vedag-Vereinigte Dachpappen Fabriken AG, Boschetsriederstr. 129, Munich. WTD 5/31/63. I.R. 108.

282 Synthetic Materials

Epoxy product for use as bonding material for concrete and concrete-masonry construction. Normen Fertigbau G.m.b.H., Weikersheimerstr. 19, Stuttgart-Zuffenhausen. I.R. 52.

Distributorship for resilient floor covering materials. Ursania Chemie GmbH, Herne/Westfalen. I.R. 62.

Materials for use as floor and wall coverings. Faul & Co., Walfischgasse 10 79 Ulm-Donau. I.R. 46.

284 Soap, Detergents, Cleaning Preparations, Perfumes, Cosmetics, Toilet Preparations

Cleaning agents for use on masonry and concrete surfaces. Erschuetterungs-und Schallschutz, Saarezstr 27, Berlin. NCIA. I.R. 113.

Cleaning agents for use on all types of masonry products. Gustav Adolf Boddenberg, 401 Hilden-Rhld., Suedstrasse 15 A. WTD 10/25/62. I.R. 1.

Agent for removal of mill scale which does not require safety gear. Gustav Adolf Boddenberg, 401 Hilden-Rhld., Suedstrasse 15 A. WTD 10/25/62. I.R. 1.

Distributorship for cleaning agents for stone and brick. Fa. Gebr. Roechling, Hansastr. 27a, Munich. WTD 10/14/59. I.R. 50.

BUILDING SUPPLIES EXHIBIT: U.S. Mission members Price and Brown during visit to the Bauzentrum or building center in Bremen. Permanent display headquarters, such as this, are now located in 8 German cities. The centers offer U.S. firms year-round showcases for construction materials.

289 Chemical Products

Chemical compounds to prevent scaling, rusting, corrosion of water pipes. Goeppinger Apparatebau GmbH, Bahnhofstrasse 7,7320 Goeppingen. I.R. 84.

Concrete and asphalt paving coating for improving and protecting surface. Kloeckner Bayerkontor GmbH, Schliessfach 51, 8 Munich 3. WTD 6/26/63. I.R. 47.

Rust removers, preventatives. Dallmayer & Co. KG, 8052 Moosburg/Obb. I.R. 88.

Wear resistant chemical coatings for concrete which also provide water tight and weather proof surfaces. Also chemical coatings or plastic extrusions suitable for stock feed troughs, waste troughs. Hans Dorn Dorit-Werk, 839 Passau-Heining. I.R. 93.

Adhesives for installation of ceramic tile to gypsum and concrete surfaces. H. R. Cussler, GmbH, Postfach 19, 8 Muenchen 42. I.R. 75.

Insulation materials and equipment. Fa. Gebr. Roechling, Hansastr. 27a, Munich. WTD 10/14/59. I.R. 50.

Adhesives for use with cement and plastic. Eternit AG, Kanalstrasse, Berling-Rudow. WTD 6/2/58. I.R. 53.

Insulating material for use on oil tanks and hot and cold pipe insulation. H. Pfeil, Heidestrasse 54, Frankfurt/Main. I.R. 23.

291 Petroleum Refining

Asphalt roofing shingles. Behrens, Clogner & Co., Buergerweide 10 B, Hamburg 26. I.R. 7.

295 Paving, Roofing Materials

Roofing materials for flat roof decks. Georg Eicken, Auf dem Reuterhamm 9, Bremerhaven-L. I.R. 4.

327 Concrete, Gypsum, Plaster Products

Materials for floor and wall coverings. Faul & Co., Walfischgasse 10, 79 Ulm-Donau. I.R. 46.

Moulded Stucco plaster with appearance of stone for exterior building facing. Maku-Bau, Hermesdorfer-Damm 159, Berlin 28. I.R. 121.

Concrete mix products for reduced weight and increased strength. Lenz-Bau AG, Mecklenburgischestrasse 57, Berlin-Wilmersdorf. I.R. 123.

Insulation materials including roofing insulation boards. Dr. Friedrich Nafzger Nachfl. Hamburger Korksteinfabrik, Billbrookdeich 217. Hamburg-Billbrook. I.R. 116.

Masonry coating which breathes and is waterproof. Henri Benthack, Eiffestrasse 500/504, Hamburg 26. I.R. 14.

Waterproofing material for use in construction of tunnels. H. Pfeil, Heidestrasse 54, Frankfurt/Main. I.R. 22.

Finished manufactured gypsum products. Ernst Winde, Stilfserjoch Strasse 44, Munich. I.R. 40.

Waterproofing material for use against ground water penetration. H. Pfeil, Heidestrasse 54, Frankfurt/Main. I.R. 23.

Fire retardant treated acoustic tile and plasterboard. Johann Scharf, Ladestrasse 43, Bremen. WTD 4/25/61. I.R. 8.

Industrial floor coating suitable for use in wet and acidic industrial applications. Industrie-Agentur Becker & Co., Donandtstr. 4, Bremen. WTD 4/3/63. I.R. 10.

Distributorship for wall, ceiling, flooring materials. Kloeckner Bayernkontor, 7 Sendlinger Tor Platz, Munich. WTD 6/26/63. I.R. 78.

Distributorship for protective masonry coating products. Siegelbeton GmbH, Suppinger Strasse 17, 7903 Laichingen. WTD 10/6/61. I.R. 80.

329 Abrasive, Asbestos, Non-metallic Mineral Products

Asbestos roofing shingles. Behrens, Clogner & Co., Buergerweide 10 B, Hamburg 26. I.R. 7.

Foam glass insulation 2¼". H. Huetzen GmbH, Greefsallee 51, 406 Viersen/Rheinland. I.R. 85.

Resilient floor coverings. Werk der Vereinigte Jute-Spinnereien u. Webereien A.G.—Hamburg, Siegburgerstr. 42, 5302 Beuel. WTD 8/4/61. I.R. 63.

Rigid insulation for pipes on shipboard. Industrie-Agentur Becker & Co., Donandtstr. 4, Bremen. WTD 4/3/63. I.R. 10.

Acoustic tiles made from mineral fibers. Erschuetterungs- und Schallschutz, Suarezstr. 27, Berlin 19. NCIA. I.R. 113.

343 Heating Apparatus, Plumbing Fixtures

Plumbing and heating equipment for use in residential construction projects. Firm desires distributorship for cast iron radiators. Posschl Eisen und Kohlen Gesellschaft m.b.H., Beckergrube, Luebeck. I.R. 2.

344 Fabricated Structural Metal Products

Aluminum window frames for assembly in Germany. Hermann Schaeler Bauunternehmen, Mecklenburgischestr. 50-56, Berlin-Schmargendorf. I.R. 128.

Distributorship or agency for aluminum products. Firm presently representing large U.S. aluminum manufacturer seeks non-conflicting lines. Geralco (sales agent for Alcoa in Germany, Switzerland, & Austria), Feuerbachstr. 14, Frankfurt. I.R. 48.

Exclusive agency for aluminum windows. I. Fa. H. E. Hoppe K.G., Friedensallee 48, Hamburg-Altona. I.R. 105.

Roofing material for use on flat roofs. H. Pfeil, Heidestrasse 54, Frankfurt/Main. I.R. 23.

Roofing materials for flat roof decks. Georg Eicken, Auf dem Reuterhamm 9, Bremerhaven-L. I.R. 4.

Suspended or hung ceiling systems. Ernst Winde, Stilfserjoch Strasse 44, Munich. I.R. 40.

Aluminum siding. H. Huetzen GmbH, Greefsallee 51, 406 Viersen/Rheinland. I.R. 85.★

Aluminum sliding windows and doors for assembly in Germany; aluminum screens; shower enclosures. Behrens, Clogner & Co., Buergerweide 10 B, Hamburg 26. I.R. 7.

Coated metal sheets suitable for fabrication into sandwich wall panels for building construction. Industrie-Agentur Becker & Co., Donandtstr. 4, Bremen. WTD 4/3/63. I.R. 10.

352 Farm Machinery

Small size soil aerator. A. Tramann & Sohn, 91er Strasse 5-5a, Oldenburg (Oldb). I.R. 9.

353 Construction Machinery

Used road building and earth moving equipment. Impex Handelsgesellschaft, Rembertistrasse 108, 28 Bremen. WTD 3/18/63. I.R. 25.

Large, diesel powered frontend loaders for use with granular material. A. Tramann & Sohn, 91er Strasse 5-5a, Oldenburg (Oldb.). I.R. 9.

Distributorship for light construction equipment such as earth moving and grading. Josef Bautz GmbH, Mittelbergstr. 39, Saulgau/Wuertt. WTD 1/15/62. I.R. 79.

Special machinery for opening up hairline cracks in concrete pavements ⅜" to 2" deep by ¼" to 1" wide for subsequent filling with sealants. Posschl & Co. GmbH., Schiersteiner Str. 19-21, Wiesbaden. WTD 6/10/63. I.R. 16.

Machinery for application of polyesters and epoxies to damaged concrete surfaces. Posschl & Co. GmbH., Schiersteiner St., 19-21, Wies-

NEW SUBDIVISION, BREMEN: Some 40,000 Germans will be accommadated in 10,000 residential units in this project planned by several German and foreign architects. Area will include schools, playground, banks, restaurants and movie houses—a modern contrast to Hanseatic buildings downtawn.

baden. WTD 6/10/63. I.R. 16.

Machinery using high pressure water for removal of damaged concrete. Possehl & Co. GmbH., Schiersteiner Str. 19-21, Wiesbaden. WTD 6-10-63. I.R. 16.

Machinery equipment for use on streets and runways. Non-slip type. Possehl & Co., GmbH., Schiersteiner Str. 19-21, Wiesbaden. WTD 6/10/63. I.R. 16.

Agency for earth moving equipment, cranes, concrete mixers and shovels. Baumaschinen Koenicke, Kaiserin-Augusta Allee 100, Berlin NW 21. I.R. 118.

Agency for construction machinery, equipment. Firm presently sells cranes, hoists, excavators, road building equipment. Peter Gries K.G. Nordallee 10, 5420 Oberlahnstein/Rh. I.R. 111.

Agency for small construction machinery and equipment in the $2500 range with special interest in street building equipment. Wilhelm Nobis, Brauweiler Wcg 28, 5 Koeln-Muengersdorf. I.R. 131.

355 Special Industry Machinery

Used machinery for production of consumers' small goods. Complete plants desired for use in developing countries. Impex Handelsgesellschaft, Rembertistrasse 108, 28 Bremen. WTD 3/18/63. I.R. 26.

Machinery for manufacture, installation, maintenance of bituminous surfacing. Roho Werk, Industriegelaende, Eichstaett/Bayern. NCIA. I.R. 55.

Machinery for laying of saturated asphalt felt; applying of, etc. H. Pfeil, Heidestrasse 54, Frankfurt/Main. I.R. 23.

Tools and equipment for taping gypsum wallboard. Ernst Winde, Stilserjoch Strasse 44, Munich. I.R. 40.

356 General Industrial Machinery

Agency for water pumps. Baumaschinen Koenicke, Kaiserin-Augusta Allee 100, Berlin NW 21. I.R. 118.

Water pumping equipment. Impex Handelsgesellschaft, Rembertistrasse 108, 28 Bremen. WTD 3/18/63. I.R. 25.

363 Household Appliances

Used, reconditioned refrigerators, air conditioners in quantity, for use in developing countries. Impex Handelsgesellschaft, Rembertistrasse 108, 28 Bremen. WTD 3/18/64. I.R. 26.

382 Instruments for Measuring, Controlling, Indicating Physical Characteristics

Water flow meters and controls for home and industrial use. Lutz Schneider, 14 Prinzregentenplatz, Munich. I.R. 42.

Fuel oil flow meters for home and industrial use. Lutz Schneider, 14 Prinzregentenplatz, Munich. I.R. 42.

394 Toys, Amusement, Sporting Goods

Plastic swimming pools for home use. Behrens, Clogner & Co., Buergerweide 10 B, Hamburg 26. I.R. 7.

Leads for Importers

282 Synthetic Materials

PVC product has application as a roofing material; also PVC liner suitable for lining of metal storage tanks to prevent corrosion. Ursania Bautenschutz, Herne in Westfalen. I.R. 70.

289 Chemical Products

Silicon fluoride base additive providing high resistance to sulphates, carbon-dioxide containing waters, salts, frost action. Marthahuette G.m.b.H. 8590 Marktredwitz. I.R. 72.

323 Glass Products

Cast glass door knobs and pushers for glass doors. Seleger Co., Theaterstr. 12, Zurich, Switzerland. NCIA. I.R. 102.

328 Cut Stone, Products

Ceramic tile of special design and composition. Stroeher GmbH, 634 Dillenburg, Postfach 73. I.R. 107.

342 Cutlery, Hand Tools, General Hardware

Fasteners for construction industry, bolts, nails, fasteners, conventionally or cartridge-fired fasteners. Otto Kettling KG, 5996 Altroggenrahmede. I.R. 98.

344 Fabricated Structural Metal Products

Steel scaffolding for residential and commercial buildings. Stahlgeruestbau "Ossa" GmbH, Praunheimer Landstrasse 80, Frankfurt/M.-Hausen. I.R. 27.

355 Special Industry Machinery

German manufacturer of tower cranes, concrete mixers, block making machinery, other complementary equipment is interested in exporting these products to the U.S. Wilhelm Reich Maschinenfabrik, Elisabethenstrasse 14, 7900 Ulm/Donau. I.R. 34.

381 Engineering, Laboratory, Scientific, Research Instruments

Complete line of builders and surveyors leveling instruments. Theis & Co. K.G. 16 Wolzhausen ueber Biedenkopf, Hessen. WTD 6/2/58. I.R. 20.

Investment Opportunities

Additional information, when available, and the identities of the German manufacturers offering licenses for U.S. production may be obtained from the Bureau of International Commerce, Office of International Investment, Department of Commerce, Washington, D.C. by referring to the file number following each opportunity.

Licenses offered

Manufacturer of roofing materials interested in obtaining U.S. licensee to produce its PVC roofing material primarily for industrial use. Firm also offers license for U.S. production of its PVC liner suitable for lining metal storage tanks to prevent corrosion. **File 1223.**

License offered for production of tower cranes, concrete mixers, block making machinery, equipment. One of firm's concrete mixers is automatic heavy-duty type which is small, compact. Designed as a one axle trailer mixer, it has pneumatic tires and four retractable stabilizing jacks ensuring stable operation on location. Arrangement of buckets in mixing drum is patented and calculated for thorough mixing action and rapid discharge within a minimum time. Drum is powered by special electric gear motor controlled by push buttons neatly arranged on switch panel. **File 1224.**

Manufacturer of construction machinery, hydraulic equipment offers manufacturing rights under license for air-powered boring machine capable of penetrating depths of 330 ft. Ramming device is retracted by means of hydraulic hoist. Machine can be mounted on two-wheel trailer or flat bed truck. **File 1225.**

Firm specializing in hydraulic pumping equipment for concrete wants to license U.S. firm to produce its products for U.S. market. U.S. firm must be able to service equipment on nationwide basis. **File 1226.**

Manufacturer of complete line of climbing and tower cranes for building industry seeks U.S. firm to produce its equipment under license. **File 1227.**

American licensee sought for production of phenolic resin insulating board. Roof insulating board with ventilative effects reported to have distinctive features such as foolproof method of producing reliable network of unbroken ventilation ports. U.S. patent has been applied for this roofing material that offers ventilation, vapor sealing, thermal insulation, weatherproofing all in one operation. **File 1228.**

Manufacturer of rotary tower cranes offers license for U.S. production of its cranes. Firm reports outstanding technical features of cranes makes possible use of cranes to erect all conventional building superstructures up to a maximum height of 425 ft. On its longest radius of 98 ft., the crane has a lifting power of over 3,000 lb. Some features of rotary tower cranes are simple and sturdy construction, remote control, telescopic slewing mast, convenient size for road transpórt, easy, quick assembling. Manufacturer has more than 60 yrs. experience in crane construction. **File 1229.**

Manufacturer specializing in plaster, mortar mixing machinery material handling equipment including small hydraulically-operated shovels interested in licensing U.S. manufacturer to produce its machinery. Also interested in being licensed to produce U.S. construction equipment for German market. **File 1230.**

LICENSES SOUGHT

151 Concrete construction

Construction firm wants to be licensed for use of lift slab multi-story concrete building construction. Ingenieurbau Josef Moebius GmbH., Altonaer Bahnhofstrasse 78, Hamburg-Altona.

281 Industrial chemicals

Manufacturer of chemicals for building, textile industries interested in licensing agreement to produce chemical auxiliaries for use in cement, concrete, asphalt road paving materials. Bayosan-Werk GmbH, Sigmundstrasse 58, 8500 Nuernberg.

295 Paving, roofing materials

Roofing materials manufacturer seeks license to make bituminous roofing, paving materials, new sealants used in roof and road construction. VEDAG—Vereinigte Dachpappen Fabriken AG, Boschetsriederstr. 129, Munich.

307 Plastic products

Manufacturer of plastic products for building industry wants license to produce U.S. plastic items with particular interest in newly developed plastic products for building trade. Dyna-Plastik-Werk GmbH, Bergisch Gladbach (Koeln).

343 Heating equipment

Designer, manufacturer of chemical and mechanical equipment desires license from U.S. firm for production of oil, gas burners and low and high pressure boilers. Pintsch Bamag AG, 1 Berlin 21.

353 Construction equipment

License sought to manufacture mobile (wheel) hydraulic-powered shovels with ½ to 2 cu. m. capacity, other heavy equipment such as graders, scrapers. Fritz Jahn-Baumaschinen, 50 Stendelweg, Berlin 19.

355 Railroad equipment

Manufacturer of diversified industrial products seeks license to make machinery for construction, repair, maintenance of railway beds. Firm also interested in manufacturing rights for new equipment for alignment of railroad tracks. Fried. Krupp Maschinenfabriken Essen, 103 Altendorferstr, Essen.

356 Air purifying equipment

Seeks license to manufacture air cleaning, purifying equipment, materials such as filters. Interest is in equipment for large scale use in purifying air for cities, industry smokestacks, factories. Heinrich Wassermann Bauunternehmung, Ossendorferstr. 308, Koeln.

U.S. DEPARTMENT OF COMMERCE—FIELD OFFICES

ALBUQUERQUE, N. MEX., 87101, U.S. Courthouse. Phone: 247-0311.

ANCHORAGE, ALASKA, 99501, Rm. 306, Loussac-Sogn Building. Phone: BR 2-9611.

ATLANTA, GA., 30303, 75 Forsyth St., N.W. Phone: JAckson 2-4121.

BIRMINGHAM, ALA., 35203, Title Bldg., 2030 Third Ave., North. Phone: 323-8011.

BOSTON, MASS., 02110, Room 230, 80 Federal St. Phone: CApitol 3-2312.

BUFFALO, N.Y., 14203, 504 Federal Bldg., 117 Ellicott St. Phone: TL 3-4216.

CHARLESTON, S. C., 29401, Suite 201, Marcus Bldg., 6 Broad St. Phone: 722-6551.

CHARLESTON, W. VA., 25301, 3002 New Federal Office Bldg., 500 Quarrier St. Phone: 343-6196.

CHEYENNE, WYO., 82001, 207 Majestic Bldg., 16th & Capitol Ave. Phone: 634-2731.

CHICAGO, ILL., 60606, Room 1302, 226 W. Jackson Blvd. Phone: 828-4400.

CINCINNATI, OHIO, 45202, 809 Fifth Third Bank Bldg., 36 E. Fourth St. Phone: 381-2200.

CLEVELAND, OHIO, 44101, 4th Floor, Federal Reserve Bank Bldg., East 6th St. & Superior Ave. Phone: 241-7900.

DALLAS, TEX., 75202, Room 1200, 1114 Commerce St. Phone: RIverside 9-3287.

DENVER, COLO., 80202, 142 New Custom House, 19th & Stout St. Phone: 534-4151.

DETROIT, MICH., 48226, 445 Federal Bldg. Phone: 226-6088.

GREENSBORO, N. C., 27402, Room 407, U.S. Post Office Bldg. Phone: 273-8234.

HARTFORD, CONN., 06103, 18 Asylum St. Phone: 244-3530.

HONOLULU, HAWAII, 96813, 202 International Savings Bldg., 1022 Bethel St. Phone: 58831.

HOUSTON, TEX., 77002, 5102 Federal Bldg., 515 Rusk Ave. Phone: CA 8-0611.

JACKSONVILLE, FLA., 32202, 512 Greenleaf Bldg., 204 Laura St. Phone: ELgin 4-7111.

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MEMPHIS, TENN., 38103, 345 Federal Office Bldg., 167 N. Main St. Phone: 534-3214.

MIAMI, FLA., 33132, 408 Ainsley Bldg., 14 N. E. First Ave. Phone: FRanklin 7-2581.

MILWAUKEE, WIS., 53203, Straus Bldg., 238 W. Wisconsin Ave. Phone: BR 2-8600.

MINNEAPOLIS, MINN., 55401, Room 304, Federal Bldg. 110 S. Fourth St. Phone: 334-2133.

NEW ORLEANS, LA., 70130, 1508 Masonic Temple Bldg., 333 St. Charles Ave. Phone: 527-6546.

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PHOENIX ARIZ., 85025, New Federal Bldg., 230 N. First Ave. Phone: 261-3285.

PITTSBURGH, PA., 15222, 1030 Park Bldg., 355 Fifth Ave. Phone: 471-0800.

PORTLAND, OREG., 97204, 217 Old U.S. Courthouse, 520 S. W. Morrison St. Phone: 226-3361

RENO, NEV., 89502, 1479 Wells Ave. Phone: FA 2-7133.

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SANTURCE, PUERTO RICO, 00907, Room 628, 605 Condado Ave. Phone: 723-4640.

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